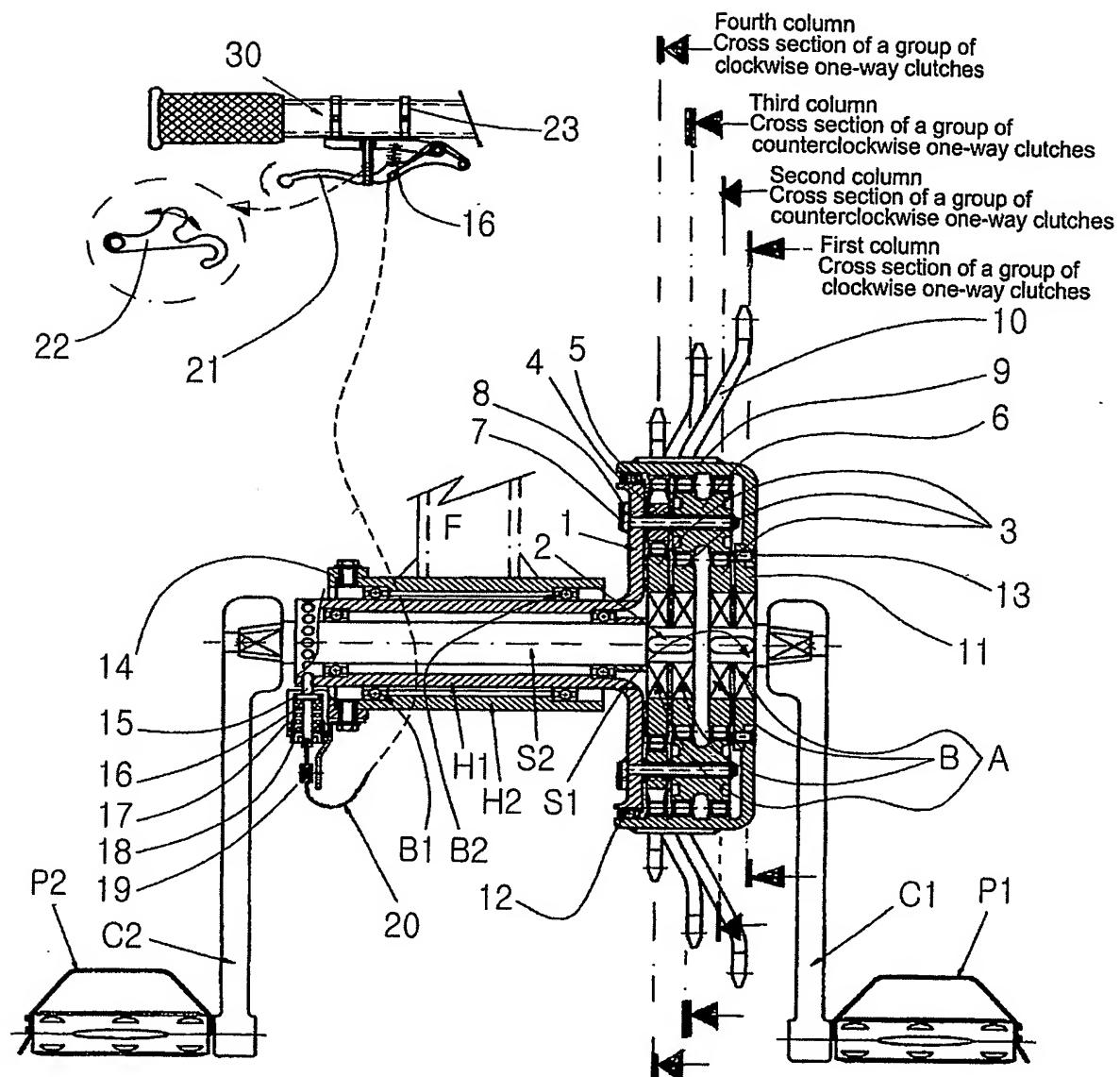


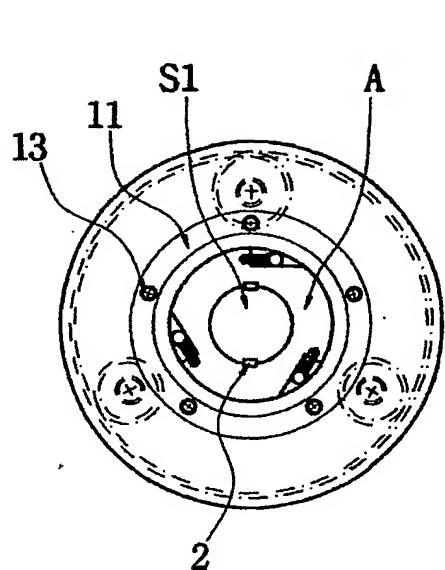
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FIG 1

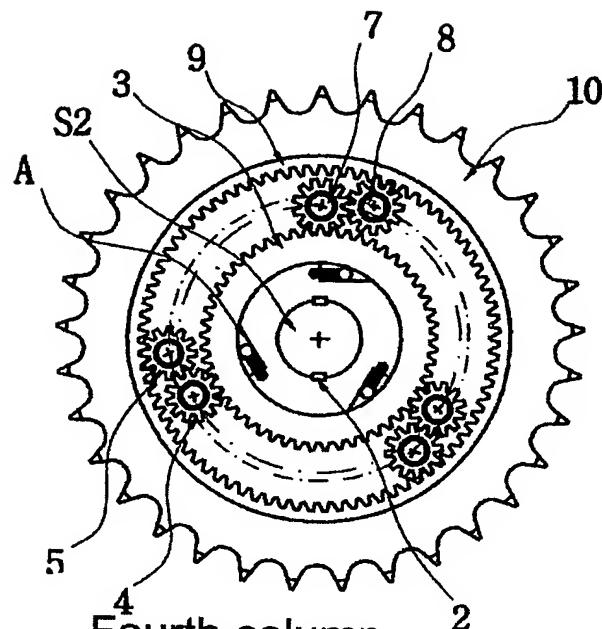


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FIG 2a



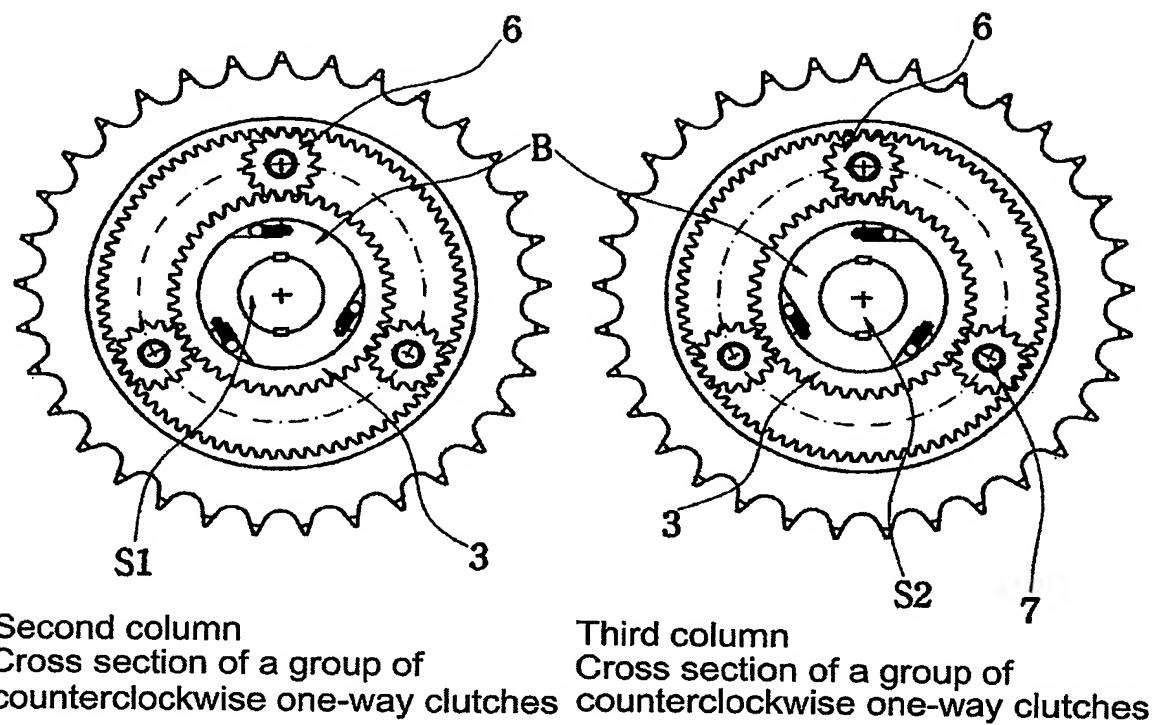
First column
Cross section of a group of
clockwise one-way clutches



Fourth column
Cross section of a group of
clockwise one-way clutche

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FIG 2b



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FIG 3a

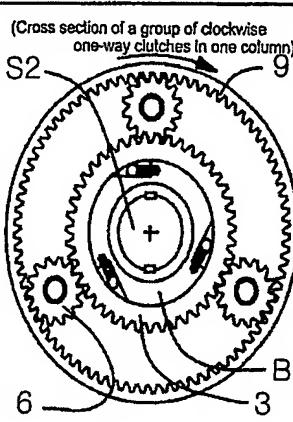
Cross sectional view (Cross section of a group of clockwise one-way clutches in one column)	Symbol	Name	One driving shaft clockwise rotation	One driving shaft (counterclockwise rotation)	The other driving shaft (clockwise rotation)	The other driving shaft (counterclockwise rotation)
	S1	One driving shaft	Clockwise rotation	Counterclockwise rotation	Stopped	Stopped
	A	Inner wheel of clockwise one-way clutch	Clockwise rotation	Counterclockwise rotation	Stopped	Stopped
	A	Outer wheel of clockwise one-way clutch	Clockwise rotation	Passive clockwise rotation	Passive clockwise rotation	Passive clockwise rotation
	11	Flange	Clockwise rotation	Passive clockwise rotation	Passive clockwise rotation	Passive clockwise rotation
	9	Ring gear	Clockwise rotation	Passive clockwise rotation	Passive clockwise rotation	Passive clockwise rotation
		Result	Bicycle moves forward	Bicycle moves forward	Bicycle moves forward	Bicycle moves forward
		Others	In forward movement Inner wheel transfers power to outer wheel	When inner wheel is rotated in the counterclockwise direction, outer wheel idles in the clockwise direction	When inner wheel is rotated in the counterclockwise direction, outer wheel idles in the clockwise direction	When inner wheel is rotated in the counterclockwise direction, outer wheel idles in the clockwise direction
		Specialty	The cross-section structure of the first column is the same as those of the fourth column whereby one driving shaft and the other driving shaft have the same rotational speed ratio.			

FIG 3b

Cross sectional view	Symbol	Name	One driving shaft (clockwise rotation)	One driving shaft (counterclockwise rotation)	The other driving shaft (clockwise rotation)	The other driving shaft (counterclockwise rotation)
(Cross section of a group of counterclockwise one-way clutches in second column)	S1	One driving shaft	Clockwise rotation	Counterclockwise rotation	Stopped	Stopped
	B	Outer wheel of counterclockwise one-way clutch	Clockwise rotation	Counterclockwise rotation	Stopped	Stopped
	B	Inner wheel of counterclockwise one-way clutch	Passive counterclockwise rotation	Counterclockwise rotation	Passive counterclockwise rotation	Passive clockwise rotation
	3	Central gear	Passive counterclockwise rotation	Counterclockwise rotation	Passive counterclockwise rotation	Passive clockwise rotation
	6	Hollow turnabout gear	Passive counterclockwise rotation	Clockwise rotation	Passive counterclockwise rotation	Counterclockwise rotation
	9	Ring gear	Clockwise rotation	Clockwise rotation	Clockwise rotation	Clockwise rotation
		Result	Bicycle moves forward	Bicycle moves forward	Bicycle moves forward	Bicycle moves forward
		Others	When Inner wheel is rotated in the clockwise direction, outer wheel idles in the counterclockwise direction against inner wheel	When inner wheel is rotated in the counterclockwise direction, outer wheel transfers power	Driving shaft is separated and outer wheel idles in the counterclockwise direction	Driving shaft is separated and inner wheel idles in the counterclockwise direction

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FIG 3c

Cross sectional view	Symbol	Name	One driving shaft (clockwise rotation)	One driving shaft (counterclockwise rotation)	The other driving shaft (clockwise rotation)	The other driving shaft (counterclockwise rotation)
(Cross section of a group of clockwise one-way clutches in one column) 	S2	The other driving shaft	Stopped	Stopped	Clockwise rotation	Counterclockwise rotation
	B	Inner wheel of counterclockwise one-way clutch	Stopped	Stopped	Clockwise rotation	Counterclockwise rotation
	B	Outer wheel of counterclockwise one-way clutch	Passive counter-clockwise rotation	Passive counter-Clockwise rotation	Passive counter-clockwise rotation	Counterclockwise rotation
	3	Central gear	Passive counter-clockwise rotation	Passive counter-clockwise rotation	Passive counter-clockwise rotation	Counterclockwise rotation
	6	Hollow turnabout gear	Passive clockwise rotation	Passive clockwise rotation	Passive clockwise rotation	Clockwise rotation
	9	Ring gear	Clockwise rotation	Clockwise rotation	Clockwise rotation	Clockwise rotation
		Result	Bicycle moves forward	Bicycle moves forward	Bicycle moves forward	Bicycle moves forward
		Others	Driving shaft is separated and outer wheel idles in the counterclockwise direction	Driving shaft is separated and outer wheel idles in the clockwise direction, outer wheel rotates in the counterclockwise direction against inner wheel	When inner wheel is rotated in the clockwise direction, outer wheel rotates in the counterclockwise direction against inner wheel	In counterclockwise rotation, outer wheel transfers power.

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FIG 3d

Cross sectional view	Symbol	Name	One driving shaft (clockwise rotation)	One driving shaft (counterclockwise rotation)	The other driving shaft (clockwise rotation)	The other driving shaft (counterclockwise rotation)
{Cross section of a group of clockwise one-way clutches in fourth column}	S2	The other driving shaft	Stopped	Stopped	Clockwise rotation	Counterclockwise rotation
	A	Inner wheel of clockwise one-way clutch	Stopped	Stopped	Clockwise rotation	Counterclockwise rotation
	A	Outer wheel of clockwise one-way clutch	Passive clockwise rotation	Passive clockwise rotation	Clockwise rotation	Passive clockwise rotation
	3	Central gear	Passive clockwise rotation	Passive clockwise rotation	Clockwise rotation	Passive clockwise rotation
	4	Turnabout gear	Passive counter-clockwise rotation	Passive counter-clockwise rotation	Counterclockwise rotation	Passive counter-clockwise rotation
	5	Second turnabout gear	Passive clockwise rotation	Passive clockwise rotation	Clockwise rotation	Passive clockwise rotation
	9	Ring gear	Clockwise rotation	Clockwise rotation	Clockwise rotation	Clockwise rotation
		Result	Bicycle moves forward	Bicycle moves forward	Bicycle moves forward	Bicycle moves forward
		Others	Outer wheel idles against inner wheel	Outer wheel idles against inner wheel	In the clockwise direction, inner wheel transfers power to outer wheel	When inner wheel is rotated in the counterclockwise direction, outer wheel idles in the clockwise direction.